

THE MINERAL INDUSTRY OF CZECH REPUBLIC

By Walter G. Steblez

The Czech Republic reported positive economic performance for 1994. The country's gross domestic product grew by about 2.6% compared with that of 1993 and industrial output rose by 2.3% during the same period. The steep decline in industrial output that occurred from 1991 through 1993, owing to structural changes in the economy during the country's transition from central economic planning to a market-based economic system, appeared to have abated by early 1994. The Czech Republic's minerals industry, however, showed stabilization of production, largely in the industrial minerals sector and in the steel industry. On the other hand, metal mining, excepting that of gold and uranium, had ceased because of unfavorable markets. In the mineral fuels sector, the decline in the output of coal was somewhat balanced during the year by an increase in the production of natural gas and petroleum. The Czech Republic remained an important regional producer of steel, industrial minerals and building materials. Foreign commercial agreements on gold prospecting, the addition of new capacities in the steel industry, and the transfer of new technology from the United States to the nuclear energy sector were among the noteworthy activities in the minerals industry in 1994.

Government Policies and Programs

Taking into account the new economic climate that was emerging in the Czech Republic, the Government began to develop pragmatic programs to bring about the rapid denationalization of the country's economy and, where necessary, the modernization of industrial processes. Realizing that foreign investment could be an appropriate vehicle to help achieve both ends, the Government started to widen the dissemination of public information, much of which was unavailable during the rule of the Communist regime. To help address the needs of the country's minerals industries, the Ministry of Industry of the Czech Republic, under advisement from its Department of Minerals Resources and Geological Survey, in 1994 continued to issue the "Mineral Commodity Summaries of the Czech Republic." This document was patterned on similar publications by the U.S. Bureau of Mines and those of several other major market economy countries. Additionally, this report also was published in English and included information on mineral characteristics, domestic production and use, deposits and reserves, outlook, main world producers, the possible substitutions for metal-bearing ores, industrial minerals and rocks, building materials, and fossil fuels.¹

The mining code of the Czech Republic (consolidated text of 1992, Law No. 439/1992) and the decree of the Ministry of Environmental Protection of May 1992, No. 364 on protected areas of mineral deposits, respectively, addressed issues relative to the exploitation of the country's mineral deposits and the protection of the environment in the vicinity of the deposits.² Reportedly, a new mining law was to have been drafted jointly by the Ministries of the Economy and Environmental Protection. In April, it was announced that separate bills drafted by each agency were joined, but that a number of differences in interpretation of various provisions and definitions still had to be resolved.

Environmental Issues

The interdependence between the future of the minerals industry of the Czech Republic and the abatement of industrial point sources of pollution remained an important issue in the country in 1994. As in other former member countries of the Council for Mutual Economic Assistance (CMEA), the development of heavy industries in the Czech Republic, including those for steel production and the mining and processing of metals, fossil fuels, and industrial minerals, was carried out largely without reference to market economy or environmental considerations from 1946 to 1989. Government programs such as industrialization, central economic planning, and associated policies resulted in the loss of flexibility in industry, including the minerals sector, needed to maintain competitiveness with market economy countries. The Czech Republic's industry, compared with those of market economy countries, became relatively inefficient and polluting. Although, in many cases, the Government's environmental policies were codified into law, these laws were rarely, if ever, enforced. Industrial pollution in the Czech Republic had been severe, largely from point sources associated with steelmaking and low-grade, coal-burning electric powerplants, as well as the country's cement and chemical industries. As in other former centrally planned economy countries of Europe, severe air pollution resulted from the use of high-sulfur, low-grade coal and lignite to power the country's thermal electric power stations.

Operative environmental legislation for the Czech Republic was Law No. 17/1992, which set basic definitions and principles regarding environmental protection as well as the obligations of "legal and physical persons (bodies)" for protecting the environment during the use of natural resources. In December 1993, the Ministry of the Environment drafted a report, titled "The Environmental

Policy of the Czech Republic."³ The report established priorities for the Government's environment policies that accorded with those described in "An Environment for Europe" by the United Nation's Economic Commission for Europe. It was based on the requirement to "limit risks to human health and risks which threaten to create irreversible changes and damage to the environment."

Policy proposals specific to mining were covered under the geological environment component of the report. The given aims were to promote the efficient use of nonrenewable natural resources; limit the contamination of the geological environment; protect rare natural occurrences, such as geological outcrops, rare mineral, and palaeontological sites. Proposed measures in pursuit of these goals included restrictions on mining as a basis for formulating raw materials policies; the integration of cutbacks in the mining industry with the establishment of funds for land reclamation; the construction of hazardous waste dumps, including those for radioactive materials; and the enforcement of environmental auditing of mining operations. Additionally, recommendations were made to require abatement of raw materials and energy consumption, increase the use of local secondary raw materials and renewable material resources, and limit exports of primary raw materials.

In 1994, international activities relative to environmental protection included an agreement in April between a consortium of U.S. electric power companies (Wisconsin Electric Power Company and Edison Wisconsin Electric Power Company, among others) and the government of the city of Decin in North Bohemia to limit air pollution in the region. The agreement called for the conversion of the brown-coal-fired electric power station in Decin to the use of natural gas. Reportedly, the U.S. consortium was to contribute \$600,000 to this project and new equipment was to have been installed by 1995.⁴

Production

The production results for metals in 1994 were mixed. The output of pig iron and crude steel in 1994 appeared to have stabilized, showing an upturn compared with production levels reached in 1993. For steel output, this increase amounted to 5%. On the other hand, the mine output of most nonferrous metals had ceased or showed only minimum production levels. Such was the case of mined uranium and zinc ores. The Czech Republic no longer would exploit uneconomic mineral resources, as often was the case when the country's minerals industries were operating under a system of central economic planning. In 1994, the relatively improved showing of the country's steel and industrial minerals sectors was consonant with emerging market priorities that addressed issues of infrastructural modernization and the export of marketable high value steel-based durable goods. (See table 1.)

Trade

By yearend 1994, the value of total exports of the Czech Republic increased by about 7% compared with that of 1993

and the value of imports by slightly more than 13%. The member countries of the European Union (EU) collectively were the Czech Republic's largest trading partner in terms of total exports and imports.⁵ However, Russia and other Republics of the former Soviet Union (FSU) maintained their position as a major supplier of mineral and mineral fuel commodities.⁶ Major mineral imports by the Czech Republic in 1994 included crude petroleum, 6.5 million metric tons (Mmt), an increase of 16% compared with 1993; imports of natural gas increased by about 8% to 7.3 million cubic meters (Mm³); and imports of iron ore amounted to about 7.3 Mmt, a decline of slightly more than 3%, compared with those of 1993. Mineral exports for 1994, selectively published in official trade statistics, included cement, 2.069 Mmt; kaolin, 345,000 metric tons (mt); and limestone, 53,000 mt, which showed declines of 1%, 19%, and 72%, respectively, compared with those of 1993.⁷

Structure of the Mineral Industry

Table 2 lists the administrative bodies as well as subordinate production units of the main branches of the country's mineral industry in 1994. (See table 2.)

Commodity Review

Metals

Gold.—In 1994, plans to develop the Kasperske Hory gold deposit remained an important issue for the country's mining sector. In 1993, a consortium of Canadian mining interests, composed of Paramount Ventures and Finance Inc. and Royalstar Resources Ltd., formed a joint venture with the Czech Republic's State-owned enterprise Dulni AS of Bohemia to develop and mine the Kasperske Hory deposit. In that agreement, Royalstar and Paramount each acquired 40% of Dulni's shares. Reportedly, in 1994, Tvx Gold Inc. of Toronto, Canada, purchased a 90.5% equity in the joint venture through the acquisition of Paramount's and Royalstar's interests, in exchange for US\$1 million and 600,000 shares of Tvx stock.⁸ Should the new joint venture decide to put the deposit into production, Tvx would issue an additional 400,000 shares to Paramount and Royalstar.

Developmental work at the deposit by the Government of the Czech Republic since 1992 reportedly amounted to about US\$2 million and included both surface and underground drilling, largely in the Golden creek region of the deposit. About 16,661 meters (m) had been drilled at 53 surface holes and 1,544 m had been drilled at 14 underground stations. Underground facilities developed at the site prior to 1992 included an adit level, from which numerous exploratory cross cuts were developed. Reportedly, these facilities would function as haulage routes and draw points during actual mining operations.⁹ At yearend 1993, the joint venture paid the Government of the Czech Republic US\$390,489 for the earlier exploratory work and would pay the Government an additional US\$1.95 million following the completion of the economic feasibility study in 1995. By yearend 1993, the

gold-bearing quartz vein deposit had drill indicated reserves of 10.3 Mmt of ore grading 6.8 grams of gold per metric ton of ore. In 1994, the joint venture conducted a multi-phase exploration program reportedly under the supervision of Fox Geological Consultants of Vancouver, Canada, to more fully determine the parameters of gold resources at Kasperske Hory.

Iron and Steel.—The chief activities in the country's steel industry during the year included plans announced by Nova Hut SA, the country's largest steel producer, to build a mini-hot strip mill. The project would cost about US\$250 million and would have a design capacity to produce 1 Mmt of flat-rolled steel per year, largely for the domestic market. Reportedly, ICF Kaiser International Inc. of the United States would supervise the construction of the planned mill. The operation of the mill was to begin in 1997. Also, Zelezarne Vitkovice Steelworks of Ostrava indicated a modernization program for the company's heavy plate producing operations. New capacities were to include the addition of a Mannesmann Demag four stand vertical continuous slab caster that would be capable of casting steel ranging in thickness from 7 millimeters (mm) to 200 mm; length from 12 to 15 m; and width from 800 to 1,200 mm. The principal customers of the heavy plate would be in the EU.¹⁰

Foreign commercial activities involving the country's steel sector reportedly included an announcement of planned acquisition of Valcovany Trub of Chomutov in northern Bohemia by Sandvik AB of Sweden. Valcovany Trub produced cold-worked stainless and carbon pipes that would be supplied with feedstock from other Sandvik operations in Sweden and the United Kingdom. Sandvik planned to use the Valcovany Trub plant as a source of exports of U-bend heat exchanger tubes, undersea cable tubes for offshore drilling platforms, and other products for the world market.

Uranium.—The two major areas containing uranium deposits in the Czech Republic are at Rozna in Western Moravia (hydrothermal mineralization), and at Hamr, near Straz pod Ralskem in Northern Bohemia (uranium-bearing sandstones bounded by chalks). There are also resources of uranium near the Krusne Hory range associated with tertiary sediments. About 60% of the uranium was extracted through underground mining and the balance, at Hamr, by means of in situ underground chemical leaching. Total commercial resources were measured at about 139,000 mt of uranium metal contained in the ore.¹¹

In view of the transition of the Czech economy to a market economy system, the cessation of Russian purchases of Czech uranium for processing, low world market prices for uranium, as well as Slovakia's decision to buy the abundant and less expensive Russian material, the future of this sector would depend on the continued operation of the Dukovany nuclear electric power station and the completion of construction of the Temelin nuclear power station in 1995. In 1994, industry sources reported that uranium concentrate would be produced exclusively to meet the needs of the nuclear powerplants in the Czech Republic. A program to

rationalize the uranium mining and processing industry envisaged the denationalization of most support services and their facilities, such as laboratories, construction units, and design and engineering offices. Only those functions that pertain directly to uranium mining and associated environmental cleanup would remain under state control.¹²

Industrial Minerals

The Czech Republic continued to be a major producer of industrial minerals in the Central European region with resources sufficient to meet both domestic and export needs.

According to its Annual Report for 1994, Ciments Francais restructured its investment profile in the cement industry of the Czech Republic. Ciments Francais, which had held controlling shares in both Cemos Ostrava and Cement Hranice, sold its 68.4% stake in Cemos Ostrava to Cement Hranice while maintaining a 63.3% interest in the Cement Hranice. Also, according to the report, in 1993, nearly one-third of combined sales of the Czech cement plants of 900,000 mt was exported mainly to Austria and Germany. Despite the fact that a substantial share of the Czech Republic's cement industry was effectively owned by EU-based cement producers, including those of Germany, charges of alleged dumping of cement on the EU market by the Czech Republic and other members of the Central European Free Trade Association (CEFTA) were leveled during the year. Reportedly, the charges were brought against the CEFTA cement companies by the German cement producers association, whose share in the German domestic market fell from 86% in 1991 to 80% in 1992.¹³

Mineral Fuels

Coal.—In the Czech Republic, the brown coal-lignite-producing areas were at Brno, Kladno, Most, Plzen, Skokolov, and Trutnov. Reportedly, 90% of the brown coal-lignite was extracted by surface mining and is typically a high ash and sulfur product ranging from 6.6% to 41.1% in ash content (30% average). The coal's sulfur content ranged from 0.7% to 6.0% (1.8% average). Most of the brown coal and lignite was consumed by the country's electric power generating industry, causing a significant sulfur dioxide (SO₂) emission problem. Bituminous coal was mined entirely underground by the longwall method at the East Bohemia, West Bohemia, Kladno, and Ostrava-Karvina Coalfields. The Kladno and Ostrava-Karvina Coalfields were the largest producers of bituminous coal, respectively, accounting for about 6% and 88% of the country's total bituminous coal output. About 73% of the coal produced at Ostrava-Karvina has been suitable as coking coal. Kladno's entire output consisted of steam coal.

It was reported that the management of Ostrava-Karvina Mines Co. (OKD) had spent about US\$34 million on environment-related projects in 1993 at the company's mine sites in the Ostrava region. OKD reportedly planned to spend an equal amount of money on pollution control and environmental cleanup in 1994 and allocate an additional

US\$15 million for environmental purposes to governmental authorities, near the mining area.

Petroleum.—In 1993, a consortium of petroleum-producing companies, consisting of AGIP S.P.A., Conoco LTD., and Total Oil Holdings LTD. of the EU, submitted an investment proposal to the Ministry of Industry and Trade of the Czech Republic involving an investment of US\$2.5 billion during a 10-year period in the country's petroleum and petrochemical sectors. In 1994, following a study of the proposal, the Government of the Czech Republic decided to reject the investment offer in favor of domestic companies and investors to keep the country's petrochemical sector under domestic management.

Reserves

Taking into account the Czech Republic's efforts of establishing a market economy, the country's mineral reserves would have to be reevaluated from a market economy perspective. As defined in market economy countries, reserves are those mineral deposits that can be mined at a profit under existing conditions with existing technology. In former CMEA countries, including the Czech Republic, the prior policies for centrally planned industrial development often had more to do with political than economic considerations.

Infrastructure

The Czech Republic's transportation system consisted of 65,324 kilometers (km) of railroads and highways. The country's railroad system consisted of 9,434 km of track. The highway and road system was 55,890 km in total length. The country's maritime outlets are entirely in neighboring countries: Poland (ports at Gdynia, Gdansk, Szczecin); Croatia (Rijeka); Slovenia (Koper); and Germany (Hamburg and Rostock). The country's merchant fleet totaled 437,291 deadweight tons and included 13 cargo vessels and 9 bulkers. The pipeline network included 5,400 km of pipe for natural gas.

Outlook

The near-term outlook for the Czech Republic's economy and mineral industry appears to be good, especially in comparison with most other former centrally planned economy countries of Eastern Europe. The country's highly focused and vigorous economic restructuring program apparently has stimulated substantial foreign investment in

the country's minerals industries—a trend that is likely to continue for the foreseeable future. With scientific and technical excellence as one of the main components of the country's cultural tradition, the Czech Republic can be expected to extend its influence throughout the region known as Eastern Europe as well as the republics of the FSU. Industries such as steel, ceramics, construction materials, and associated quarry products should continue to meet the needs of both the country's domestic and foreign customers.

¹Mineral Commodity Summaries of the Czech Republic. Geofond, Prague, May 1993.

²Rocnik 1992, Sbirka zakonu Ceske a Slovenske Federativni Republiky, Nos. 74 and 87.

³The Environmental Policy of the Czech Republic (Draft by the Minister of the Environment), Prague, Dec. 1993.

⁴BBC, SWB EEW/0330, Apr. 28, 1994, p.WA/2, from CTK News Agency, Prague, 1629 gmt, Apr. 18, 1994.

⁵External Trade, Jan.-Dec. 1994, No. 19, Czech Statistical Office, Prague, Feb. 1995, pp. 12-22.

⁶Work cited in footnote 5.

⁷Economic and Social Indicators of Czech Republic, Czech Statistical Office, No. 4, 1994, pp. A-20-A-21.

⁸The Northern Miner, v. 80, No. 32, Oct. 10, 1994, p.11, and American Metal Market, Aug. 19, 1994, p. 8.

⁹The Duval Report (Minecom), May 1994, pp. 1-3.

¹⁰Metal Bulletin, May 12, 1994, p. 24.

¹¹Work cited in footnote 1, pp. 63-65; Gornaya Entsiklopediya, Moscow "Sovetskaya Entsiklopediya, 1991 V. 5, pp. 394, 397-398.

¹²FBIS-EEU-94-188, Sept. 28, 1994, p. 4, from Mlada Fronta Dnes, Prague, Sept. 12, 1994, p. 14.

¹³Financial Times, May 5, 1994, p. 4.

¹⁴Mining Journal, London, Mar. 24, 1995, p. 215.

Major Sources of Information

Federalni statisticky urad (Federal Statistical Department)

Sokolovska 142

18613 Prague 8

Czech Republic

Ministerstvo zahranicneho obchodu (Ministry of Foreign Trade)

Politickych veznu 20

11001 Prague 1

Czech Republic

GEOFOND

Kostelni 26

17021 Prague 7

Czech Republic

Major Publication

Mineral Commodity Summaries of The Czech Republic, Prague, Geofond (Annual), May 1994.

TABLE 1
CZECH REPUBLIC: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity		1990	1991	1992	1993	1994 e/
METALS						
Aluminum, secondary		--	--	--	30,000 e/	48,300 3/
Antimony, mine output, Sb content e/		250	400	-- r/	-- r/	-- 3/
Antimony, metal		216	324	223	-- r/	-- 3/
Copper:						
Mine output:						
Ore, gross weight		178,000	--	--	--	-- 3/
Concentrate:						
Gross weight		3,420	--	--	--	-- 3/
Cu content		684	--	--	--	-- 3/
Metal:						
Refined, primary 4/		800	600	500	200	-- 3/
Refined, secondary		20,000 e/	20,000 e/	20,000 e/	20,000 e/	23,300 3/
Gold metal	kilograms	187	564	521	550	75 3/
Iron and steel:						
Iron ore:						
Gross weight	thousand tons	93	102	64	160	-- 3/
Fe content	do.	60	66	42	39	-- 3/
Metal:						
Ferroalloys, total electric furnace e/	do.	--	1	1	1	1
Crude steel	do.	10,000	7,970 r/	7,340 r/	6,730 r/	7,070 3/
Semimanufactures	do.	9,030	7,170 e/	7,000	7,000	6,450 3/
Lead:						
Mine output, Pb content		2,300	2,100	1,100	100 r/	-- 3/
Concentrate, gross weight		2,050	2,010 e/	2,000	2,000	1,000
Pb content of concentrate		1,040	1,030 e/	1,000	1,000	500
Metal, secondary		23,700	17,800	24,000	20,000	20,000
Mercury		2	--	--	--	-- 3/
Silver	kilograms	16,200	8,900	6,200	500	100 3/
Tin:						
Mine output, Sn content		590	15	--	--	-- 3/
Metal, primary and secondary		613	118 e/	115	115	100
Tungsten, mine output, W content		84	12	--	--	-- 3/
Uranium, mine output, U content		2,240	1,830	1,630	1,020 r/	537 3/
Zinc:						
Mine output:						
Ore (Pb-Zn), gross weight		452,000	353,000 e/	220,000	250,000	15,000
Zn content of ore		7,500	8,500	4,400	1,500	100 3/
Concentrate, gross weight		10,300	9,760 e/	9,000	9,000	9,000
Zn content e/		5,000	4,800	4,400	4,000	4,000
Metal, secondary		978	811	1,070	1,000	1,000
INDUSTRIAL MINERALS						
Barite		1,000 e/	1,000 r/	--	--	-- 3/
Cement, hydraulic	thousand tons	6,430	5,610 r/	6,150 r/	5,390	5,300 3/
Clays:						
Bentonite	do.	159	125	135	63 r/	65 3/
Kaolin	do.	3,460	2,910	2,530	2,340	2,710 3/
Diatomite		82,000	68,000	57,000	39,000	40,000 3/
Diamond, synthetic e/	carats	5,000	5,000	5,000	5,000	5,000
Fertilizer, manufactured:						
Nitrogenous, N content		245,000	182,000	180,000 e/	180,000 e/	261,000 3/
Phosphatic, P2O5 content		146,000	46,300	40,000 e/	40,000 e/	13,700 3/
Potassic, K2O content		51,300	23,100	20,000 e/	20,000 e/	21,900 3/
Mixed		154,000	55,300	50,000 e/	50,000 e/	157,000 3/
Feldspar		115,000	130,000	152,000	203,000 r/	170,000 3/
Fluorspar		18,500	82,000 r/	22,000	22,000 r/	10,000 3/
Gemstones, crude: pyrope-bearing rock		30,000 e/	31,000	45,000	34,000	33,000 3/
Graphite		39,000	47,000 r/	20,000	27,000 r/	25,000 3/
Gypsum and anhydrite, crude		661,000	569,000	660,000	560,000 r/	591,000 3/
Lime, hydrated and quicklime	thousand tons	2,280	1,390 r/	1,340 r/	1,150 r/	1,210 3/
Nitrogen: N content of ammonia		250,000 e/	200,000 e/	200,000 e/	200,000 e/	287,000 3/
Quartz		169,000	65,000	46,000	23,000	2,000 3/
Salt		209,000	184,000 e/	180,000	180,000	180,000
Sand and gravel:						
Common sand and gravel	thousand cubic meters	20,700	12,800	12,800	12,200	11,500 3/
Foundry sand	thousand tons	1,580	919	1,080	954	1,090 3/
Glass sand	do.	1,180	918	888	781	862 3/
Stone:						
Basalt		70,000 e/	72,000	107,000	134,000	85,000 3/
Dimension stone	thousand cubic meters	170,000 e/	198,000	176,000	177,000	223,000 3/
Limestone and other calcareous stones	thousand tons	15,400	11,500	11,100	10,500 r/	10,200 3/
Building stone	thousand cubic meters	16,100	9,520	8,410	7,490	8,220 3/

See footnote at end of table.

TABLE 1
CZECH REPUBLIC: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1990	1991	1992	1993	1994 e/	
INDUSTRIAL MINERALS--Continued						
Sulfur, byproducts, all sources e/	20,000	20,000	20,000	20,000	20,000	
Sulfuric acid	300,000 e/	300,000 e/	300,000 e/	300,000 e/	350,000 3/	
MINERAL FUELS AND RELATED MATERIALS						
Coal:						
Bituminous	thousand tons	30,700	25,800	24,700	23,900	20,900 3/
Brown and lignite	do.	80,200	77,500	69,500	68,200	60,700 3/
Coke:						
Metallurgical	do.	4,170	3,700	3,500	3,500	5,150 3/
Unspecified	do.	3,120	2,740	2,800	2,800	2,800
Fuel briquets from brown coal	do.	1,050	892	800	800	800
Gas:						
Manufactured, all types	million cubic meters	5,940	5,380	5,000	5,000	5,000
Natural, marketed 3/	do.	125	125	132	106	154 3/
Petroleum:						
Crude:						
As reported	thousand tons	47	61 r/	80	107	131 3/
Converted	thousand 42-gallon barrels	319	414 r/	542	550	889
Refinery products e/	do.	95,500	90,000	90,000	90,000	95,000

e/ Estimated.

1/ Table includes data available through June 1995. In addition to the commodities listed, arsenic, diatomite, dolomite, illite, sodium compounds, sulfur acid, talc, and zeolite are produced, but information is inadequate to make reliable estimates of output levels.

2/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

3/ Reported figure.

4/ Produced as a byproduct from noncopper ores.

5/ Includes gas produced from coal mines. Gross output of natural gas is not reported, but it is believed to exceed reported marketed output by a relatively inconsequential amount.

TABLE 2
CZECH REPUBLIC: STRUCTURE OF THE MINERAL INDUSTRY FOR 1994

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies1/	Location of main facilities2/	Annual capacity
Antimony:			
Ore	Krasna Hora	Central Bohemia	NA
Cement			
	Cizkovice, Hranice, Karlov Dvor, Lochkov, Pracovice, and Velary	Bohemia	3,500
Do.	Bystre, Malomerice, Mokra, Ostrava-Kunice, and Zahorie	Moravia	2,800
Clay, kaolin	Mines in Karlove vary area	West Bohemia	450
Do.	Mines in Plzen area	Central Bohemia	150
Coal:			
Bituminous	Mines in OKD coal basin	Ostrava-Karvina, north Moravia	22,100
Do.	Mines in KD coal basin	Kladno, central Bohemia	3,000
Brown	SHD administration	Most, northwest Bohemia	61,000
Do.	HDB administration	Sokolov, west Bohemia	17,000
Lignite	JLD administration	Hodonin, south Moravia	5,000
Copper:			
Ore	Zlate Hory	North Moravia	300
Lead-zinc, ore	Horni Benesov and Zlate Hory	do.	400
Lead, metal, secondary:			
Refined	Kovohute Pribram	Pribram	26
Natural gas	Gasfields around Hodonin	South Moravia	25
Petroleum:			
Crude	Oilfields around Hodonin	do.	140
Refinery	Kolin, Kralupy, Pardubice, and Zaluzi	Bohemia	NA
Steel, crude	Nova Hut sp (Ostrava)	Kunice-Ostrava	3,800
Do.	Zelezarne Vitkovice	Vitkovice-Ostrava	1,900
Do.	Trinecke Zelezarny (Trinecke Iron and Steel Works)	Trinec	3,000
Do.	Poldi United steel Works	Kladno-Prague	1,700
Do.	Zelezarny Bila Cerkev	Hradek-Rokycany	300
Do.	Zelezarny Veseli	Veseli and Moravou	300
Do.	Zelezarny Chomutov sp	Chomutov	350
Do.	Bohumin Iron and Steel Works	Bohumin	400
Tin, ore	Krasno (Stannum) and Cinovec	North west Bohemia	300

NA Not available

1/ All mining companies are Government owned.

2/ Names and locations of mines and crude oil refineries are identical.